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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,842	02/12/2004	Larry D. Seiler	00100.02.0039	5902

29153 7590 03/21/2006

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EXAMINER	
LUU, MATTHEW	
ART UNIT	**PAPER NUMBER**
3663	

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/777,842	SEILER ET AL.	
	Examiner	Art Unit	
	LUU MATTHEW	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-9 and 11-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5, 7-9 and 11-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 9 and 11-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Jouppi et al (6,204,859).

Claim 9.

Jouppi discloses (Figs. 4 and 5) a method for determining the appearance of a pixel (300), comprising:

receiving fragment data (301, 302 and 400) for a pixel (300) to be rendered;

storing the fragment data in the pixel memory (314); and

determining an appearance value for the pixel based on the stored fragment data, wherein (Fig. 5C) at least one of the stored fragment data (310) is dropped when the number of fragment data per pixel exceeds a threshold value (N=2). Fig. 5C shows the fragment triple data (410) replaces the fragment triple data (310). See column 7, lines 37-67; column 8, lines 21-28; and column 9, lines 26-37.

Jouppi further teaches dropping the fragment data with a no color designation (completely transparency) (Column 15, lines 28-33).

Claim 11.

Jouppi further discloses (Fig. 6D) the threshold value is N=3 (310, 312 and 410).

Claim 12.

Jouppi discloses (Fig. 5C) at least one of the stored fragment data (310) is dropped when the number of fragment data per pixel exceeds a threshold value (N=2). Fig. 5C shows the fragment triple data (410) replaces the fragment triple data (310). Jouppi further teaches dropping the fragment data having the least effect on pixel appearance (replacing the fragment data, which has the smallest color difference) (Column 9, line 65 to column 10, line 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jouppi as applied to claim 9 above, and further in view of Everitt et al (US 2004/0169651).

Claim 13.

Jouppi discloses (Fig. 6D) each coverage masked sample data (620, 622) is in association with each subpixel sample S1-S4. The coverage masked sample data (620, 622) can be separate from each other or from the fragment triples (310, 312). See column 13, lines 30-31 and lines 45-48).

Jouppi fails to explicitly teach that "wherein the masked sample data is not dropped, and wherein the masked sample data is used to determine the appearance value for the pixel.

However, Everitt discloses (Figs. 1 and 4) a graphics processor having a rasterization pipeline (400) for determining a pixel appearance value (depth value) based on the fragment data by dropping the fragment data having the least effect on pixel appearance (if the depth values are outside the depth bounds, then the pixel or pixels in the fragment do not need to be rendered and can be discarded) (Page 4, section 32 and 35).

Everitt further teaches "Stencil values are used to mask portions of the output image during rendering, and are used to render a variety of different effects, such as mirrors and shadows" (Section 17, lines 12-15). Everitt further discloses (Fig. 4) a stencil test unit (425) masks all or a portion of the fragment from rendering according to a stencil value stored in the stencil buffer (455) (Page 5, section 42).

Therefore, it would have been obvious to a person of ordinary skill in the art to use the stencil values of Everitt to mask the portions of the fragment image of Jouppi to

render a variety of different effects, such as mirrors and shadows, which would effect the appearance value for the pixel.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-3, 5, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US 2003/0030642) in view of Jouppi et al (6,204,859).

Claim 1.

Chen discloses (Figs. 1 and 2) a graphics processor, comprising:

a rasterizer (rasterizer chip 16) operative to generate fragment data for a pixel to be rendered in response to primitive information (Page 1, section 16, lines 3-7);

a pixel appearance determination circuit (Fig. 2, memory chip 10 having a logic core 50), coupled to the rasterizer (16), for determining which bits are least important to the texture representation and eliminated those bits (Page 3, section 25, lines 9-11).

Chen fails to disclose the dropping the fragment data with a "no color" designation.

However, Jouppi discloses (Figs. 4 and 5) a method for determining the appearance of a pixel (300), comprising:

receiving fragment data (301, 302 and 400) for a pixel (300) to be rendered; storing the fragment data in the pixel memory (314); and

determining an appearance value for the pixel based on the stored fragment data, wherein (Fig. 5C) at least one of the stored fragment data (310) is dropped when the number of fragment data per pixel exceeds a threshold value (N=2). Fig. 5C shows the fragment triple data (410) replaces the fragment triple data (310). See column 7, lines 37-67; column 8, lines 21-28; and column 9, lines 26-37.

Jouppi further teaches dropping the fragment data with a no color designation (completely transparency) (Column 15, lines 28-33).

Therefore, it would have been obvious to the person of ordinary skill in the art to use the method of dropping a "no color" fragment data of Jouppi into the graphics processor of Chen to reduce the amount of time spent rendering the pixels and decreases the memory space for storing the fragment data.

Claim 2.

Chen further discloses (Fig. 2) the determination circuit is a combined memory and logic chip for storing the fragment data (Page 1, section 8; and page 2, section 19, lines 1-11; and section 22, lines 1-8).

Claims 3 and 7.

Chen fails to teach dropping one of the fragment data when the fragment data exceeds a predetermined value N.

However, Jouppi discloses (Fig. 5C) the determination of an appearance value for the pixel based on the stored fragment data, wherein at least one of the stored fragment data (310) is dropped when the number of fragment data per pixel exceeds a threshold value (N=2). Fig. 5C shows the fragment triple data (410) replaces the fragment triple data (310). Jouppi further discloses (Fig. 6D) the threshold value is N=3 (310, 312 and 410). See column 7, lines 37-67; column 8, lines 21-28; and column 9, lines 26-37.

Claim 5.

Chen discloses (Fig. 1) a setup unit (a geometry chip 14) operative to generate the primitive information in response to vertex information (Page 1, section 16, lines 1-7).

Claim Rejections - 35 USC § 103

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Jouppi as applied to claim 1 above, and further in view of Everitt.

Claim 8

Chen fails to explicitly teach that "wherein the masked sample data is not dropped, and wherein the masked sample data is used to determine the appearance value for the pixel.

However, Everitt discloses (Figs. 1 and 4) a graphics processor having a rasterization pipeline (400) for determining a pixel appearance value (depth value) based on the fragment data by dropping the fragment data having the least effect on pixel appearance (if the depth values are outside the depth bounds, then the pixel or pixels in the fragment do not need to be rendered and can be discarded) (Page 4, section 32 and 35).

Everitt further teaches "Stencil values are used to mask portions of the output image during rendering, and are used to render a variety of different effects, such as mirrors and shadows" (Section 17, lines 12-15). Everitt further discloses (Fig. 4) a stencil test unit (425) masks all or a portion of the fragment from rendering according to a stencil value stored in the stencil buffer (455) (Page 5, section 42).

Therefore, it would have been obvious to a person of ordinary skill in the art to use the stencil values of Everitt to mask the portions of the fragment image of Chen to render a variety of different effects, such as mirrors and shadows, which would effect the appearance value for the pixel.

Claim Rejections - 35 USC § 103

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Jouppi as applied to claim 1 above, and further in view of Duluk, Jr. (6,476,807).

Claim 4.

Chen further discloses (Fig. 1) a display controller (display chip 18) operative to provide the pixel appearance value to a display (20) (Page 1, section 16, lines 14-18).

Chen fails to disclose the back end circuit.

However, Duluk, Jr. teaches the back end circuit is used to provide the interface between the frame buffer and the computer display in a graphics processor system (Column 28, lines 21-32).

It would have been obvious to the person of ordinary skill in the art to use the back end circuit of Duluk, Jr. into the graphics processor of Chen since this is conventional in the art.

Response to Arguments

Applicant's arguments with respect to claims 1-5, 7-9 and 11-13 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues, at pages 5-7, with respect to Chen and Everitt, by asserting that Chen and Everitt fails to teach "wherein dropping the fragment data further includes assigning the fragment data to be dropped with a no color designation". The examiner respectfully disagrees since this argument is moot in view of the new ground(s) of rejection.

Furthermore, Jouppi further teaches dropping the fragment data with a no color designation (completely transparency) (Column 15, lines 28-33).

Applicant also argues, at pages 8-9, by asserting that Everitt teaches that the masked portion of a fragment, as masked by a stencil test unit 425, is not rendered". The examiner respectfully disagrees.

Everitt clearly teaches "Stencil values are used to mask portions of the output image during rendering, and are used to render a variety of different effects, such as mirrors and shadows" (Section 17, lines 12-15). Everitt further discloses (Fig. 4) a stencil test unit (425) masks all or a portion of the fragment from rendering according to a stencil value stored in the stencil buffer (455) (Page 5, section 42).
Based on the above teaching, Everitt clearly teaches masking all or a portion of the fragment by or during rendering, and are used to render a variety of different effects, such as mirrors and shadows" (Section 17, lines 12-15). It is inherent that by rendering the mirrors and shadows of the image, it would effect the appearance value for the pixel.

Regarding to the Applicant's argument with respect to claims 9 and 11-13, note the rejections as set forth above.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUU MATTHEW whose telephone number is (571) 272-7663. The examiner can normally be reached on Flexible Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JACK KEITH can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M. Luu

MATTHEW LUU
PRIMARY EXAMINER